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Authors

Slavin, Leo

Haines, Jill M

Rangarajan, Krishnan

et al.

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PFO Size as a Predictor of Stroke Size in Patients with Paradoxical Embolization

Leo Slavin, Jill M Haines, Krishnan Rangarajan, Catherine Dao, David S Liebeskind, Jonathan M Tobis, David Geffen Sch of Medicine at UCLA, Los Angeles, CA

PFO Size as a Predictor of Stroke Size in Patients with Paradoxical Embolization **Background:** Patent foramen ovale (PFO) has been implicated as the pathway for cryptogenic stroke. This study evaluated the relationship between the anatomic and functional size of the PFO and the cerebral infarct volume identified on MRI. **Methods:** Of the 220 patients referred for PFO closure between 2001 and 2006, 156 (68%) had a diagnosis of cryptogenic stroke and MRI plus TEE data was available in 38 of these patients. TEE was used to obtain measurements of the PFO including opening width, length, and the width of septum secundum. The degree of right-to-left shunt was quantified by agitated saline injection. MRI of the brain with three different sequences (T2, DWI, FLAIR) was used to diagnose acute stroke and measure the infarct volume. **Results:** Analysis of all parameters demonstrated no significant correlation between the PFO width, length, septum secundum width, total septal excursion distance or bubble grade and the stroke volume measured. Correlation coefficients are listed in the table.

Conclusion: Previous studies report that increased PFO width or the degree of right-to-left shunt may increase the frequency of CVA. As distinguished from stroke frequency, the present analysis demonstrates no significant association between PFO size and stroke volume. Therefore the size of PFO or right-to-left shunt on bubble study during TEE cannot be used to predict the size of a potential stroke.

	DWI	T2	FLAIR
Stroke Volume (cm ³)	7.15±8.98	6.56±9.46	5.69±7.27
PFO width	0.17	-0.10	-0.10
Maximum PFO length	0.15	-0.06	-0.04
Minimum PFO length	0.15	0.10	-0.07
Septum secundum width	-0.08	0.10	0.10
Total septum excursion	0.09	-0.34	-0.21
Bubble grade	-0.10	-0.28	-0.17

p = NS for all correlation coefficients